DRAFT
DECISION NOTICE
FINDING OF NO SIGNIFICANT IMPACT
TENNESSEE CREEK PROJECT
USDA FOREST SERVICE
LEADVILLE RANGER DISTRICT, SAN ISABEL NATIONAL FOREST
LAKE COUNTY, COLORADO
EAGLE-HOLY CROSS RANGER DISTRICT, WHITE RIVER NATIONAL FOREST
EAGLE COUNTY, COLORADO

The legal description of this project area includes all or parts of Township (T) 8 South (S), Range (R) 80 West (W), Sections 13, 14, 15, 16, 17, 20, 21, 22, 23, 24, 25, 26, 27, 31, 32, 34, 35, and 36; T8S, R81W, Section 36; T9S, R80W, Sections 1, 2, 3, 6, 7, 8, 10, 11, 16, 17, 18, 19, and 20; T9S, R81W, Sections 1, 2, 3, 4, 9, 10, 11, 12, 13, 14, 15, 16, 22, 23, 24, 25, and 26; and T10S, R81W, Sections 12, 13, 24, 25, 26, 27, and 28. Sixth Principal Meridian.

DECISION AND REASONS FOR THE DECISION

BACKGROUND

In the late 1990s, the first signs of a mountain pine beetle (*Dendroctonus ponderosae*) epidemic were seen in the Rocky Mountain Region. The epidemic escalated and impacted forest stands on the White River National Forest and to a lesser extent, the San Isabel National Forest.

The headwaters for the Arkansas River is located on the San Isabel National Forest and a large portion of the water for the urban corridor along the Front Range of Colorado either originates in, or is conveyed through the Arkansas River Basin. Turquoise Lake, located northwest of Leadville, as well as Twin Lakes further south, are reservoirs for many Front Range municipalities. Front Range water providers are concerned about the impacts to reservoirs from forests impacted by insect, disease, and high intensity wildfire. As a result, the water providers worked collaboratively with the Forest Service during the development of the project.

The Tennessee Creek Project was developed to analyze the effects of completing mechanical and prescribed fire treatments to improve forest health conditions and wildlife habitat while maintaining the overall recreation experience. The purpose and need of the project are: to create forest conditions that are more resilient to insects, diseases, and fire; to improve or maintain habitat for threatened, endangered and sensitive species and other important wildlife species; and to provide for sustainable watershed conditions. The environmental assessment (EA) documents the analysis of the two action alternatives to meet this need.

The project area covers approximately 16,450 acres. Of the total project area, approximately 13,580 acres were considered for treatment. The project is located north, northeast, northwest, and west of the town of Leadville, Colorado. The project area is located from Halfmoon Creek, north to Tennessee Pass, and east/southeast to Mt. Zion. The majority of the project area is within the Leadville Ranger District of the San Isabel National Forest in Colorado. A minor part of the project area is located within the Eagle-Holy Cross Ranger District of the White River National Forest in Colorado (Ski Cooper).

DECISION

After a review of the environmental impacts disclosed in the environmental assessment, comments received from the public, tribes and other agencies, a review of the forest plans, and a review of the project record documenting the best available scientific information, I have decided to select Alternative 1, the Proposed Action for implementation. This decision authorizes the following activities on 16,450 acres over the next 10 years:

SUMMARY

- Regenerate lodgepole pine through clear cutting on 2,370 acres.
- Thin 6,765 acres of mature lodgepole pine stands. Pre-commercial thin 345 acres of advanced regeneration of lodgepole pine.
- Improve aspen stands through prescribed fire and/or harvesting on 115 acres.
- Utilize prescribed fire on 6,040 acres with an average of 150 – 300 acres of treatment per year.
- Remove encroaching conifers in meadows and sagebrush (1,345 acres) and use prescribed fire treatments in meadows throughout the project area (1,330 acres).
- Create small openings (less than 5 acres) in mixed conifer stands adjacent to spruce-fir by harvesting lodgepole pine to promote regeneration (375 acres).
- Remove spruce infested with or killed by insects (up to 1,395 acres).
- Maintain vegetation cover and increase age class and structure diversity over the long-term within the Ski Cooper Ski Area permit boundary (1,052 acres) utilizing mechanical and prescribed fire treatments in lodgepole and spruce-fir.
- Treatments adjacent to the Continental Divide National Scenic Trail (CDNST) will be modified in accordance with Design Criteria #45 – 47 (see the appendix to this decision).
- In order to conserve Canada lynx, the proposed action is specifically designed to comply with all objectives, standards, and guidelines in the Southern Rockies Lynx Amendment. To further protect quality lynx habitat, all areas in mapped lynx habitat with greater than 35 percent dense horizontal cover will not be treated.
- Mechanical treatments (thinning / clearcuts) will average 300 – 500 acres per year.
- Improve aquatic organism passage through the removal or replacement of 5 – 7 non-functioning culverts on National Forest System roads.
- Construct 2 – 4 nesting platforms at Turquoise Lake.
- Improve erosion and compaction issues by ripping, contouring, mulching, seeding, and/or installing erosion control netting in four developed sites (campgrounds and picnic areas).
- Improve aquatic habitat, reconstruct channel geometry, reduce erosion, and normalize sediment transport in 2.3 miles of Halfmoon Creek.
- Improve and maintain approximately 14 miles of Forest System roads including widening a portion of Forest System Road 109.
- Create approximately 20 miles of temporary roads and open approximately 1.5 miles of closed roads over the life of the project; roads will be closed and rehabilitated after treatments are complete.

VEGETATION TREATMENTS

Lodgepole Pine – Clearcuts / Openings

Treatments that result in openings will not exceed 25 percent of the lodgepole pine stands (Table 1). The treatments will provide species and age class diversity in lodgepole pine, reduce dwarf mistletoe, and improve big game (elk, deer, moose, and bighorn sheep) foraging habitat. In addition, the treatments will potentially reduce the possibility of and negative effects from large scale insect and disease outbreaks and wildfires using the following guidance and constraints:

1. Openings will be created through prescribed fire or harvesting. Clear cuts will be limited to 40 acres or less in size and where practical, will result in irregular shapes and will leave clumps of trees.
2. Prescribed burn treatment units may exceed 40 acres and may include areas that are mechanically thinned or clearcut as well as untreated areas.
3. Slash left on-site will be lopped and scattered, piled and burned, broadcast burned, crushed with yarding and harvesting equipment, or utilized for biomass.
4. Reserve areas will be left on the landscape as refuge for wildlife species. Reserve areas will be located throughout the project area and will consist of steep areas (greater than 35 percent), inaccessible areas, and wet areas. In mapped lynx habitat, stands with greater than 35 percent dense horizontal cover will also be retained. In addition to this, approximately 10 percent of the areas identified for thinning will be left as reserve areas. There will be at least 200 feet distance between adjacent clearcuts to provide secure travel corridors for wildlife. Thinning and prescribed fire treatments may occur within some of the corridors, while others will remain untreated. Old growth, areas with closed canopy or with substantial quantities of coarse woody debris will be targeted and incorporated into reserve areas between treatments and areas containing important wildlife habitat features such as squirrel middens.

Lodgepole Pine - Thinning

The following guidance and constraints will be used in thinning lodgepole pine on all remaining acres outside of clearcuts:

1. In lodgepole pine stands only, reduce basal area (BA) to an average of 80 – 120 square feet per acre. Overall, basal area may differ substantially from one point to another. Basal area reduction goals may not be met in some stands due to high initial basal area and to concerns about creating conditions susceptible to blow down. Additional future treatments will be needed to achieve basal area reduction goals.
2. Preference will be given to retaining other species (e.g., spruce, fir, and aspen) over lodgepole pine.
3. Trees will be thinned in a manner to create clumps of trees intermingled with small, irregular openings or areas of lower tree density. Pockets of dwarf mistletoe-infected trees and lodgepole interspersed with aspen will be removed to create openings and provide for species diversity.
4. Slash left on-site will be lopped and scattered, piled and burned, or utilized for biomass. Broadcast burning may take place in 25 – 50 percent of thinned areas.
5. Public fuelwood opportunities will be provided.
6. Pre-commercial thinning of young lodgepole pine stands may take place on approximately 345 acres of lodgepole pine.

Table 1. Treatable Acres in Lodgepole Pine

Subunit	Current acres of lodgepole pine	Acres of openings (clearcuts/prescribed fire) - lodgepole pine only)	Total acres of pre-commercial thinning	Thinning acres (lodgepole pine only)
Massive	5,080	1,270	305	3,505
Tennessee Pass	4,400	1,100	40	3,260
Total	9,480	2,370	345	6,765

*Acres calculated using treatable acres only. Acres do not include "no treatment" areas.

Lodgepole Pine – Prescribed Fire

Prescribed burning will reduce litter and duff layers, slash produced by treatments, and surface fuels, as well as promote regeneration of lodgepole pine and aspen.

1. Before any prescribed burning will take place, appropriate burn plans and smoke management permits that address site-specific details will be completed and approved.
2. Prescribed fire could be used in most areas that have been treated mechanically or by hand, or it could be used as a treatment by itself. The exact burn treatment to be used and their locations will be determined after mechanical vegetation treatments are completed, and will depend on the level of natural and activity fuels, slope, soil type, and other related factors in each stand.

Aspen

The objective of vegetation management in aspen is to restore the health and vigor of the existing aspen stands and expand their current extent. Treatments will include the removal of competing conifer trees within all aspen stands and the cutting and/or burning of aspen to regenerate new growth within 25 percent of the aspen stands. By reducing competition and propagating younger trees, the health and vigor of the stands will be improved; the remaining and new aspen will have increased resistance to insect and disease and a freedom from encroachment and being over taken by conifers. In lodgepole pine stands, where there is an aspen component, clearcuts and patch cuts will be used to regenerate those areas to aspen, increasing the percentage of aspen within the project area.

Prescribed burn treatments may also be used to stimulate propagation of new suckers. Prescribed fire may be used in areas that have been treated mechanically or it could be used as a treatment by itself. The same conditions listed for prescribed fire under lodgepole pine apply.

Table 2 Treatable Acres in Aspen

Subunit	Current acres of aspen	Creation of openings (aspen only)
Massive	225	57
Tennessee Pass	230	58
Total	455	115

*Acres calculated using treatable acres only. Acres do not include "no treatment" areas.

Meadows and Sagebrush

The objective of vegetation management in meadows and sagebrush is to maintain the health and vigor of meadows and sagebrush fields and improve forage for wildlife on winter range. Treatments for both meadows and sagebrush will include the removal of encroaching conifer trees. Prescribed burning will only be used in meadows.

Spruce-Fir

General Treatment: In the transition area between lodgepole pine and spruce-fir (the mixed conifer) where the understory is underdeveloped, the objective of vegetation management is to remove mature lodgepole pine to promote regeneration, thereby increasing foraging opportunities for snowshoe hare (the primary prey of Canada lynx). Individual treatment units will be between 0.1 and 5 acres. Areas that contain both substantial amounts of down, woody debris and high, horizontal cover (greater that 35 percent horizontal cover) will not be harvested. Spruce-fir will not be removed, except as stated below.

Spruce-fir with Insect and Disease Activity: As a pre-emptive treatment for spruce beetle or other insects and diseases that impact spruce forests, the following treatments will be allowed: salvage of dead trees, removal of trees infested with spruce beetles, and removal of green trees for skid trails, temporary roads, or where removal of salvaged trees will create conditions where remaining trees will blow over. Where appropriate, prescribed fire will be used to treat slash. The project area (including Ski Cooper) includes approximately 1,550 acres of spruce-fir stands. Up to 90 percent (1,395 acres) will be treated if necessary; 10 percent will be left for lynx denning habitat.

Vegetation Management at Ski Cooper Ski Area

Vegetation management on Ski Cooper will consist of a variety of treatments aimed at maintaining vegetation cover and increasing age class and structural diversity over the long-term. The exact treatment method will be determined based on stand conditions at the time of treatment.

The complete description of treatments for Ski Cooper is listed in the appendix to this decision.

General Operations for Mechanically-Treated Units

Conventional ground-based logging systems will be used to remove logs from areas that are accessible using existing Forest System Roads, non-system routes, or constructed temporary roads. Vegetation management activities will occur throughout the year and may include winter logging operations.

ROADS

Forest System Roads

To improve access to the project area, substantial maintenance may occur on FSR 109 (Mt. Zion Road). Maintenance may include widening of the road and adding culverts where needed. Other roads within the project boundary may also require basic maintenance such as: culvert cleaning or replacement, water bar or rolling dip reshaping, or the addition of culverts, water bars, or rolling dips where needed.

Temporary Roads

The construction of temporary roads will follow approved Forest Service methodology. On constructed temporary roads and non-system routes, access will be restricted to authorized personnel only. Authorized personnel include Forest Service personnel, contractors and permittees (e.g., individuals who have a valid fuelwood permit). Access will be restricted through the use of gates, barricades, or other means as appropriate. Temporary roads will not be gated while units are open for public fuelwood.

Approximately 20 miles of temporary road will be created during the life of the project to access the project area, but mileage may vary during project implementation. A single length of temporary road typically will be less than 1 mile. Temporary roads and non-system routes will be rehabilitated after

treatments are complete. This will include permanently closing the roads through techniques that include blocking the entrances, scattering limbs and brush on the roadbed, re-seeding, adding waterbars, removing fills and culverts, or reestablishing natural drainage patterns. No new Forest System Roads will be created with this project.

WILDLIFE HABITAT IMPROVEMENTS

Aquatic Organism Passage

To improve aquatic organism passage, culverts that prevent movement of aquatic organisms (e.g. fish) will be reinstalled, removed, or replaced with an appropriately sized and type of conveyance (e.g., standard culvert and bottomless arch culvert). Approximately 5 - 7 culverts may be removed or replaced as appropriate. Heavy equipment will be used and the appropriate permits will be obtained from the U.S. Army Corps of Engineers. Boulders, trees, and other native materials may also be used during installation or to rehabilitate the area.

Habitat Improvements

To protect and improve riparian ecosystems including boreal toad habitat, non-system routes and dispersed campsites that are near or go through riparian areas may be closed. Treatments include ripping, seeding, bouldering, fencing or other methods that will restrict access. Heavy equipment such as excavators may be used.

Snags will be created for cavity-dependent wildlife (e.g., birds and bats) in areas where minimum snag requirements are lacking (Forest Service 1984, pp. III – 12). Trees will be killed through girdling, prescribed fire, or other methods to create snags for cavity-dependent species.

Openings will be created through mechanical treatments in the transition area between lodgepole pine and spruce-fir to promote regeneration thereby increasing foraging opportunities for snowshoe hare, the primary prey of Canada lynx (see the Vegetation Treatments: Spruce-Fir section for further details).

Openings will be created or augmented through mechanical treatments or prescribed fire to improve big game (elk, deer, moose, and bighorn sheep) foraging opportunities and habitat where appropriate (see the Vegetation Treatment section for further details).

Encroaching conifers will be removed from sagebrush fields to improve sagebrush habitat for species such as the Brewer's sparrow (see the Vegetation Treatment: Meadows and Sagebrush section for further details).

Nesting platforms will be constructed and placed along the shoreline of Turquoise Lake to provide additional nesting opportunities for raptors (e.g., osprey and bald eagle). To create the nesting platforms, trees may be topped or poles installed in specified locations. Heavy equipment will be used to create or place the platforms.

WATERSHED IMPROVEMENT PROJECTS

Soil Erosion at Developed Sites

Soil erosion and compaction is occurring at some developed sites (campgrounds and picnic areas) at Turquoise Lake. To improve erosion and compaction, identified areas will be ripped (breaking up compaction), contoured, mulched, seeded, and/or have erosion control netting installed as needed. Both hand and mechanical treatments may be utilized and may include the use of heavy equipment (e.g., excavators). Approximately 25 acres of treatment will take place.

Developed sites that currently have soil compaction and erosion include: Molly Brown, Belle of Colorado, and Baby Doe Campgrounds, and Lady of the Lake Picnic area.

Halfmoon Creek Watershed Restoration and Habitat Improvements

Natural river restoration techniques will be used to improve aquatic habitat, reconstruct channel geometry, reduce erosion, and normalize sediment transport from the confluence of Elbert Creek and Halfmoon Creek (Mt. Massive Trailhead) downstream to the U. S. Geological Service gaging station on Halfmoon Creek. The project will provide the habitat needed to sustain a viable recreational fishery by installing a variety of habitat improvement structures at designated locations within the 2.3 mile stream segment.

The complete description of treatments for Halfmoon Creek project is listed in the appendix to this decision.

In addition to the reaches listed above, the project will also include stabilization of the road-water crossing located on FSR 110.J upstream of the confluence of South Halfmoon Creek and Halfmoon Creek. The crossing has widened over time and requires stabilization to reduce sedimentation input from the road and to improve aquatic organism passage through the crossing. The same types of treatments listed above would be utilized here.

Design Criteria and Mitigation Measures

Design criteria and mitigation measures are site-specific management activities designed to avoid and reduce the adverse impacts of project activities. These measures will be applied to the project design and layout, in timber sale contracts, and permit requirements. The design criteria I am choosing to implement are listed in the appendix to this decision. These measures include such actions as snag retention guidelines, stream buffer zones, wildlife timing restrictions, limitations on activities to minimize soil and water impacts, and restrictions on treatments adjacent to the CDNST. I am confident the selected measures will minimize adverse effects for the following reasons: these measures are practices we have used successfully in the past, many are State-recognized best management practices for protecting water quality, or they are based on current research.

Monitoring

Included in my decision is the monitoring of implementation of the design criteria and mitigation measures. Monitoring of this project is designed to accomplish three purposes: 1. to assure that all aspects of the project are implemented as intended; 2. to determine that the effects of the activities are consistent with the intent; and 3. to allow for adaptation if it is found that the activities are not being implemented correctly or are not having the desired effects. Forest Service specialists will conduct some monitoring, however since it is not feasible for Forest Service specialists to monitor all measures, personnel implementing the project, such as presale foresters, sale administrators, and harvest inspectors will be responsible for checking that the measures are adhered to and will notify Forest Service specialists if any concerns arise. The following monitoring items are part of my decision and are required.

Wildlife and Fisheries

- District personnel will monitor for nesting raptors including nesting Northern goshawks.
- District personnel will monitor for dense horizontal cover utilizing cover boards.
- Pellet sampling will be conducted in some pre-commercial thinning units to determine snowshoe hare use.
- Game camera sets may be used to determine wildlife use throughout the project area.
- District personnel will periodically monitor treatment units to ensure snag and coarse woody debris requirement are being met.
- Monitoring strategies for snowshoe hare, the primary prey species for Canada lynx, will be developed and implemented with the direction and cooperation of Colorado Parks and Wildlife. The most recent techniques and methods practical and feasible for monitoring at the project level scale will be implemented.
- In stream structures placed in Halfmoon Creek will be monitored annually for five years after implementation is complete.

Cultural Resources

- Monitoring of historic properties during and after project implementation may be determined necessary by the District Archeologist.
- In the event that cultural resources are discovered, all activities in the immediate area will stop and the District Archeologist will be notified immediately. Work will not resume in that area until the District Archeologist has coordinated with the District Ranger and work has been authorized to continue.

Fire and Fuels

- Monitoring of prescribed burns will include fire weather, fuel moisture, and smoke dispersal to ensure these activities are conducted within the prescription parameters stated in the burn plan.

Noxious Weeds

- District and Forest personnel will monitor noxious weed infestations before, during, and after project implementation. Treatments will be done as needed.

Regeneration Surveys

- Regeneration surveys will be completed for regeneration harvests three and five years post-harvest to measure success of natural regeneration and assess the need for planting to assure compliance with the National Forest Management Act and the Forest Plan.

Soil and Water

- District personnel will monitor ground disturbing activities including: construction of temporary roads, stream – temporary road crossings, skid trails and landings to ensure that best management practices (BMPs) are being adhered to.
- District personnel will monitor mud depth during contract operations. Operations will be shut down if operating equipment would cause ruts over 3 inches in depth.

- Pebble counts will be utilized to monitor stream channels within the project area.

CDNST

- District Visual Quality Monitor will monitor to ensure Visual Quality Objectives (VQO) are met for treatments adjacent to and as seen from the CDNST.

DECISION RATIONALE

In my deliberations leading to this decision, I have carefully considered the alternatives presented in the environmental assessment and the potential effects of the alternatives. Both individuals and groups raised issues and concerns during the development of this project and I considered them to help make my decision.

Four main issues were raised during scoping and considered throughout the analysis. Those included: impacts on forest health, impacts on wildlife, impacts on recreation, and impacts from roads. Specific information on each issue is listed below.

Forest Health: The majority of the lodgepole pine stands throughout the project area are even-aged mature stands with little species or age class diversity. Aspen stands are becoming decadent and losing vigor. These conditions create stands that are more susceptible to insect, disease, and wildfire. The concerns raised include: forest stand treatments would increase wind throw and increase conditions that are more susceptible to wildfire because of added surface fuel loading from slash created and blow down.

Wildlife: Some forest treatments that are proposed would change wildlife habitat conditions. The concerns raised include: changes could potentially adversely impact wildlife populations, including big game species and Canada lynx, treatments would occur during sensitive times for wildlife, reduce habitat, and increase hunting pressure.

Recreation: Some forest treatments that are proposed would occur within and adjacent to popular recreation sites including campgrounds, trailheads, and trails including the Continental Divide National Scenic Trail (CDNST). The project area is heavily used by recreationists, as well as outfitters and guides. The concerns raised include: adverse impacts to recreational opportunities and visitor perception of the natural setting, as well as create conflicts with visitors.

Roads: As part of the forest treatments, opening of decommissioned roads and construction of new temporary roads are proposed. The concerns raised include: public use of these roads while treatments are underway may cause user conflict or safety hazards and the Forest Service needs to ensure the proper closure and hydrologic stability of these roads at project completion.

The action alternatives were modified and design criteria were added to address issues identified.

This decision will treat 5.4% of the Leadville Ranger District and 1.34% of the San Isabel National Forest. This small scale of treatment was one of my considerations in the finding of no significant impact. I believe my decision to implement the Proposed Action addresses and fulfills the purpose and need for action. It creates balance between the public concerns and issues, environmental impacts, and achieving the objectives of the purpose and need. The Proposed Action promotes age and species diversity, reduces the risk of high intensity wildfire through the reduction in hazardous fuels, reduces the negative impacts that wildfire could have on watersheds, and maintains and enhances threatened, endangered and sensitive species habitats, and other important fish and wildlife habitats.

The numerous management requirements, design criteria, mitigation measures, and monitoring

activities ensure that the Proposed Action will achieve the multiple use objectives in a conservative and environmentally sensitive manner. Key design criteria include: snag retention and coarse woody debris guidelines above forest plan standards, riparian buffer zones, wildlife timing restrictions, limitations on activities to minimize soil and water impacts, and restrictions on treatments adjacent to the CDNST. The Tennessee Creek Project EA documents the environmental analysis and conclusions upon which this decision is based.

Other Alternatives Considered

In addition to the selected alterative, I considered two other alternatives, the No Action Alternative and Alternative 2. A comparison of these alternatives can be found in Chapter 2 of the EA. Refer to Chapter 3 of the EA for information on the effects of these alternatives.

No Action Alternative

Under the No Action Alternative, current management plans would continue to guide management of the project area. Mountain pine beetle risk across the project area would continue to increase due to increased stand density and increased average stand diameter. It is expected that the risk of high intensity wildfire would increase as fuels continue to increase. This would make it more difficult to control a wildfire and increase the risk to firefighter and public safety.

I considered, but did not select the No Action Alternative, since this alternative does not address the purpose and need to create forest conditions that are more resilient to insects, diseases, and fire; to improve or maintain habitat for threatened, endangered and sensitive species and other important wildlife species; and to provide for sustainable watershed conditions.

Alternative 2

Alternative 2 proposed: 3,790 acres of lodgepole pine would be regenerated through clearcuts; 2,685 acres of mature lodgepole pine stands would be thinned; 345 acres of advanced regeneration of lodgepole pine would be pre-commercially thinned (for a total of 3,030 acres thinned); improve aspen stands through prescribed fire and/or harvesting on 180 acres; and utilize prescribed fire on 5,485 acres.

Alternative 2 does meet the purpose and need for the project and I considered this alternative, but did not select it for the following reasons. Under Alternative 2, the clearcut acres increase from 25 percent considered under the Proposed Action to 40 percent. By clearcutting and regenerating lodgepole pine on 40 percent of the project area, the overall risk for insect and disease mortality and wildfire would be reduced on a larger number of acres. This alternative would benefit more acres by creating larger openings in the lodgepole pine stands. Based on the feedback we received from the public, creating a larger number of openings was not supported.

Public Involvement and Tribal Consultation

The proposal was originally listed in the Schedule of Proposed Actions (SOPA) in October 2009 and updated quarterly during the analysis. As part of the public involvement process, the agency sent out informational letters regarding the project in June 2012, held a public field trip on July 17, 2012 (11 attendees), and throughout the winter of 2012/2013 conducted multiple presentations to community groups regarding the project. During this same time frame, multiple partners from the Colorado Front Range water utilities expressed an interest in the project and collaborated with the Forest Service.

The proposal was provided to the public and other agencies for comment during scoping that began on November 8, 2012. There were 17 responses received. In addition, an Open House was held on January 15, 2013. A flyer was distributed throughout Leadville, Colorado and was published in the Leadville *Herald Democrat*, as well as at LeadvilleToday.com.

In response to public comments, direction from the responsible official and input from resource specialists, the purpose, need, and proposed action were modified.

The legal notice announcing the 30-day notice and comment period for the draft environmental assessment was published in the Leadville *Herald Democrat* on December 19, 2013. Sixteen comment letters were received and considered.

The public interest letter, the scoping letter, and notification of the 30-day comment period were sent to representatives of the Ute Mountain Ute Tribe, the Southern Ute Indian Tribe, the Jicarilla Apache Nation, and the Ute Indian Tribe (Uintah and Ouray Reservation). No responses were received from the tribes that were contacted.

FINDING OF NO SIGNIFICANT IMPACT

Based on the interdisciplinary environmental analysis, review of the NEPA criteria for significant effects, and my knowledge of the expected impacts, I have determined this decision will not have a significant effect on the human environment; therefore an environmental impact statement will not be prepared. This determination is based on the context and intensity of effects.

CONTEXT

The physical and biological effects of the proposed actions and alternatives described in the environmental assessment are site-specific actions limited to this analysis area. The significance of the proposed action is evaluated within the context of the Leadville and Eagle-Holy Cross Ranger Districts and Lake and Eagle Counties.

INTENSITY

The severity of environmental effects of the proposed project were considered in evaluating intensity (40 CFR 1508.27).

1. **Impacts may be both beneficial and adverse.**

   Both beneficial and adverse effects and their significance were discussed for the action alternatives. Effects were lessened or eliminated through design criteria and mitigation measures. None of the adverse effects were determined to be significant, singularly or in combination. The beneficial effects of the action do not bias my findings of no significant environmental effects. The anticipated environmental effects and their intensity have been disclosed for each alternative in Chapter 3 of the environmental assessment. Beneficial effects were not used to minimize the severity of any adverse effects. The proposed uses on National Forest system lands will not result in any known, significant, irreversible resource commitments or a significant irreversible loss of soil productivity, water quality, wildlife habitats, heritage resources or recreational opportunities. In reaching my conclusion of no significant impacts, I recognize that this project is likely to have impacts, which are perceived as negative, as well as positive.

2. **The degree to which the proposed action affects public health or safety**.

   Treatments adjacent to subdivisions and private lands will reduce wildfire impacts and risk to the public. Treatments adjacent to Turquoise Lake, streams and ditches will reduce the amount of sedimentation and improve the water quality in the event of a wildfire. The treatments will help improve forest health and reduce the negative impacts from wildfire, thereby reducing the risk to public health and safety.

3. **Unique characteristics of the geographic area, such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.**

   No unique characteristic of the geographical area will be significantly affected by my decision. There are no effects to prime farmlands, wetlands, floodplains, or ecologically critical areas. There are no effects to designated wilderness areas, wilderness study areas, Colorado Roadless areas, or wild and scenic rivers (EA, Chapter 3). See significant factor #8 for discussion related to historical and cultural resources.

   The Continental Divide National Scenic Trail is located along the western edge of the project area. Design criteria and mitigation measures are in place to limit the impacts to the trail (see the appendix for design criteria). An effects analysis was conducted on the CDNST and it can be found in Chapter 3 of the EA under the recreation section. It has been determined that this decision will not substantially impact the integrity of the trail.

4. **The degree to which the effects on the quality of the human environment are likely to be highly controversial.**

   The activities associated with this decision will not significantly affect the quality of the human environment. The treatments will help improve forest health and reduce the negative impacts from wildfire, thereby reducing the risk to public health and safety. I have considered the best available science in making this decision. The project record demonstrates a thorough review of relevant scientific information.

   The effects on the human environment are not likely to be highly controversial based on the involvement of forest resource specialists, other agencies, and the public. Based on collaboration the original proposed action was modified with the intent of minimizing impacts to resources. There were 17 comments received during scoping and 16 comments received during the 30-day notice and comment period. After reviewing the project record and environmental assessment, I am confident the interdisciplinary team reviewed the comments and incorporated them into the proposed action or addressed them in the appropriate resource section. It is my judgment, that while a portion of the public disagrees with various components of the project, and have raised concerns there is no unusual or high degree of controversy related to this project.

   Mechanical and prescribed fire treatments are not new management activities on the San Isabel and White River National Forests or other National Forests. I believe I have considered the most recent science. No public comments provided site specific or local evidence showing that significant site quality impairment or other highly undesirable impacts have resulted from similar work on the San Isabel or White River National Forests.

5. **The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.**

   This decision has no known effects on the human environment that are highly uncertain or involve unique or unknown risks. All of the effects of the selected alternative are similar to those taken into consideration and disclosed in the San Isabel and White River forest plans final environmental impact statements.

6. **The degree to which the action may establish a precedent for future actions with significant effects, or represents a decision in principle about a future consideration.**

   The selected alternative does not represent a precedent for future action with significant effects or represent a decision in principle about a future consideration. The environmental assessment is site specific and its action incorporate those practices envisioned in the San Isabel and White River forest plans and are within the forest plan standards and guidelines.

7. **Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.**

   The environmental assessment describes the anticipated cumulative effects for each effected resource (EA, Chapter 3). Past, present, or reasonable foreseeable actions implemented or planned in the area were analyzed. After reviewing the environmental assessment, I am satisfied that my decision will not result in significant cumulative effects.

8. **The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed , or eligible for listing, in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.**

   In the project area, 55 historic properties (termed “prehistoric sites” or “historic sites”) have been identified and recorded. 41 of these properties are historic sites, 11 are linear sites, two are prehistoric sites, and one is a multi-component with both prehistoric and historic resources. Additionally, 45 resources were recorded as isolated find/single use, small scale event locations. As a result of the previous inventories more than 100 historic properties were identified and recorded. These properties consisted of primarily historic sites but several prehistoric sites were also identified. From the over 100 properties recorded approximately 32 have been determined either eligible or potentially eligible for listing on the National Register of Historic Places and have been or will be re-evaluated.

   The project has been designed to avoid and buffer sites and as a result there will be no direct effects on cultural resources. With the implementation of design criteria, direct and indirect risks to cultural resources posed by the project are low. The decision meets both forest plans cultural resources standards and guidelines. Consultation with State Historic Preservation Office (SHPO) has determined that this project will have no adverse effects on heritage resources and is not expected to result in significant impacts to archaeological and historic resources. Site surveys and cultural resource clearances have been received for the majority of the project area. Approximately 3,700 acres are currently under contract to complete the surveys and cultural resource report; the contract will be completed the summer of 2014 and SHPO clearance is expected by September 2014.

9. **The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.**

   There are two federally listed species in the project area, Canada lynx and Greenback cutthroat trout. The project "*may affect but is not likely to adversely affect*" Canada lynx (species only, no critical habitat). The project has been designed to improve lynx foraging habitat where horizontal cover is lacking, protects high quality lynx habitat stands, does not prohibit movement throughout the lynx analysis units or linkage areas, and promotes biological diversity (age class and species diversity) by mimicking natural disturbance patterns. The proposed action is consistent with the 2008 Southern Rockies Lynx Amendment conservation measures.

   The project will have "*no effect*" on Greenback cutthroat trout. There are no known greenback cutthroat trout within the project area; a greenback population is known to occur upstream of the project area in Lake Fork Creek, but is separated from the downstream by a natural barrier. If greenback cutthroat trout drift downstream, the design criteria and BMPs will provide protection from any habitat degradation.

   Informal consultation is being conducted with U.S. Fish and Wildlife Service (FWS) for Canada lynx. This project was sent to FWS in December 2013 and concurrence is pending.

10. **Whether the action threatens to violate Federal, State, or local law or requirements imposed for the protection of the environment**.

    Implementation of the selected alternative will not violate any Federal, State, or local law or requirements imposed for the protection of the environment. Including:

    - Clean Water Act
    - Clean Air Act, as Amended in 1977
    - Endangered Species Act of 1973, as amended
    - Executive Order 11990 of May, 1977 [Wetlands]
    - Executive Order 11988 of May, 1977 [Floodplains]
    - Executive Order 13186 of January, 2001 [Migratory Bird Treaty Act]

Appendix A of the EA includes a complete list of pertinent laws and regulations the selected alternative is in compliance with. All necessary permits will be obtained. This action is consistent with the Pike, San Isabel National Forests and Comanche and Cimarron National Grasslands (PSICC) and White River National Forests Land and Resource Management Plans.

After considering the effects of the actions analyzed, in terms of context and intensity, I have determined that these actions will not have a significant effect on the quality of the human environment. Therefore, an environmental impact statement will not be prepared.

FINDINGS REQUIRED BY OTHER LAWS AND REGULATIONS (SEE SIGNIFICANCE FACTOR 10)

This decision is consistent with the PSICC and White River National Forests Land Management Plans and was designed in conformance with the plans' standards and guidelines. This decision is also in compliance with the National Environmental Policy Act (NEPA).

IMPLEMENTATION DATE

If there are no objections to the project, this Decision Notice may be signed 5 business days after the close of the Objection Period and implementation may begin immediately. If objections are received, the Decision Notice may be signed after the resolution process is complete and the Reviewing Officer's response is received. Implementation may begin immediately after the Decision Notice is signed.

CONTACT

For additional information concerning this decision, contact: Tami Conner, District Ranger, Leadville Ranger District, 810 Front Street, Leadville, CO 80461, phone: 719-486-0749.

APPENDIX

FURTHER DESCRIPTION OF PROJECT ACTIVITIES AT SKI COOPER & HALFMOON CREEK

VEGETATION TREATMENTS

Vegetation Management at Ski Cooper Ski Area

Spruce-Fir: Treatments will consist of group and individual tree selection treatments and will be designed to develop multi-aged, multi-storied stands. In addition, where multiple species occur, treatments will be designed that attempt to maintain or increase the number of species present within any particular stand.

In the event of increased spruce beetle populations at Ski Cooper, the trap tree methodology will be used to reduce spruce beetle populations in the localized area. The trap tree method involves felling groups or individual live standing trees, which attract beetles from a wide area. The trap trees are preferentially infested by these beetles and once infested, these trap trees are then hauled off site before the next generation of beetles can emerge. This method will be used until Forest Service entomologists determine this method has either achieved success or (in the case of an intense beetle outbreak) is no longer effective in reducing spruce beetle populations.

Lodgepole Pine: Treatments will be developed to establish regeneration in the forest understory. Treatments will consist of removing enough overstory trees, generally less than 30 percent of the basal area, to provide suitable conditions for regeneration to become established. Patch clearcuts will be limited to less than 5 acres at Ski Cooper.

Planting tree islands within runs will be encouraged. Cones will be collected from local sources, germinated at a Forest Service nursery, and will be available for use in establishing young islands of trees within existing runs. Ski Cooper, in coordination with the Forest Service, could determine the best placement of these groups. However, it is suggested that they be placed below existing tree islands, where appropriate, to help provide seedlings with protection from skiers while they develop.

WATERSHED IMPROVEMENT PROJECTS

Halfmoon Creek Watershed Restoration and Habitat Improvements

Natural river restoration techniques will be used to improve aquatic habitat, reconstruct channel geometry, reduce erosion, and normalize sediment transport from the confluence of Elbert Creek and Halfmoon Creek (Mt. Massive Trailhead) downstream to the U. S. Geological Service gaging station on Halfmoon Creek. Channel dimension, pattern, and profile will be restored based on the appropriate channel type(s) within this reach. Specific treatments will focus on creating additional pool and pocket water habitats, improving scour and residual pool depth in existing pools, reducing width/depth ratios, and stabilizing river banks. The restoration effort will utilize boulders, whole trees, and other native materials to mimic natural stream features, and will use a variety of structures and improvements (described below). Bank full riparian benching and stream bank toe slope stabilization will be accomplished utilizing toe wood, full length trees, transplanted willow, and sedges.

The objective will be to enhance aquatic habitat, improve hydraulic function, and reduce human impacts. Stream restoration activities were initiated in 1988 and continued into the early 1990's to address erosion, sedimentation, and poor fish habitat. Colorado Parks and Wildlife (CPW) has stocked brown trout into Halfmoon Creek in an attempt to provide a self-sustaining fishery, but this initiative has

met with limited success. Past habitat improvement has been inadequate and prior habitat structures are in disrepair. The project will provide the habitat needed to sustain a viable recreational fishery by installing a variety of habitat improvement structures at designated locations within the 2.3 mile stream segment.

Improvements will be accomplished by walking heavy equipment (e.g. small track hoe) into Halfmoon Creek. Trees for log vanes and toe wood will be acquired from surrounding lodgepole pine in the Halfmoon drainage. These trees will be pushed over with the track hoe so that the root wads will remain intact. Rocks and boulders available on-site will be used for habitat enhancement, but additional rocks may be needed from off-site. Sod mats for riparian bench creation will also be transplanted from vegetation available on-site and within reach of the track hoe arm. Four different reaches have been identified for improvements along the approximately 2.3 mile stretch of stream (Figure 2 in the appendix). Implementation would be done in phases for each reach. In Reach 1, approximately 23 structural improvements have been identified; in Reach 2, approximately 37 structural improvements have been identified; in Reach 3, approximately 33 have been identified; and in Reach 4, approximately 19 have been identified. Proposed activities and structures that will be utilized under this proposal are listed below. Re-vegetation of disturbed areas will occur as directed by the District Biologist.

Proposed Activities and Types of Structures include:

- Point bar development
    - Re-contour to narrow channel
    - Re-contour to widen channel
- Log vane
- Log cross vane
- Rock cross vane
- Wood toe (bank stabilization provided by using several trees with root balls attached, stacking them to lessen velocity and create fish habitat underneath the trees)
- Excavate ponds (whenever there are vanes created)
- Micro-vortex structure using rocks
- Macro-vortex structure using rocks
- Rock/boulder vane
- Riparian bank creation (using sod mats available on site)
- Cobble toe creation
- Boulder clusters to create small pools (rocks about 2 feet in diameter)
- Re-contouring or re-structuring of channel using variety of methods discussed in this document
- Rock groin
- Roughen riffle with rocks
- Create thalwag pool
- Install grade control structure
- Remove old man-made structure
- Create j-hook with log and rocks
- Create j-hook with rocks

MAPS

Figure 1. Map of the Proposed Action with Subunits

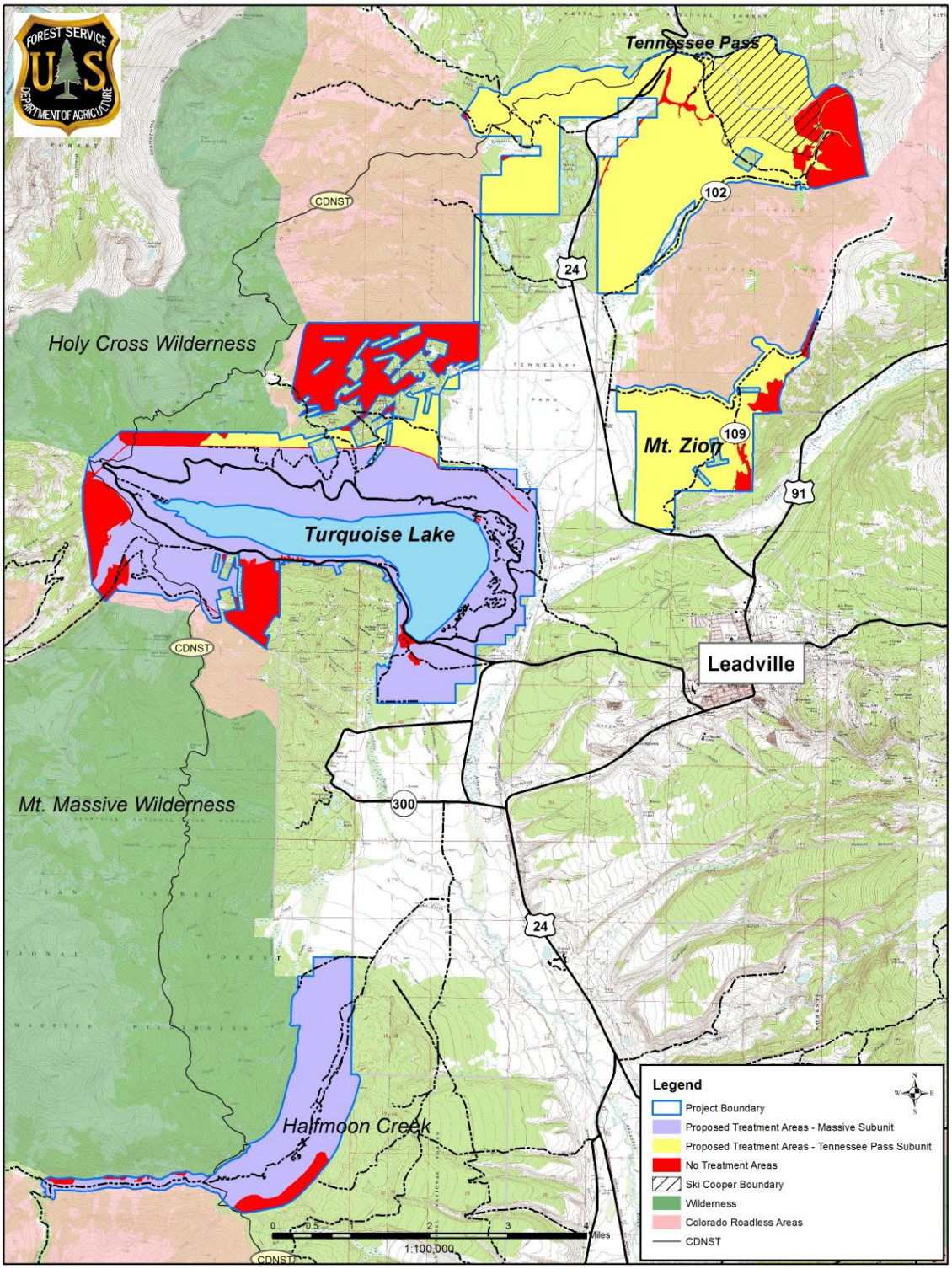


Figure 2. Locations of Halfmoon Creek Watershed Restoration and Habitat Improvement Projects

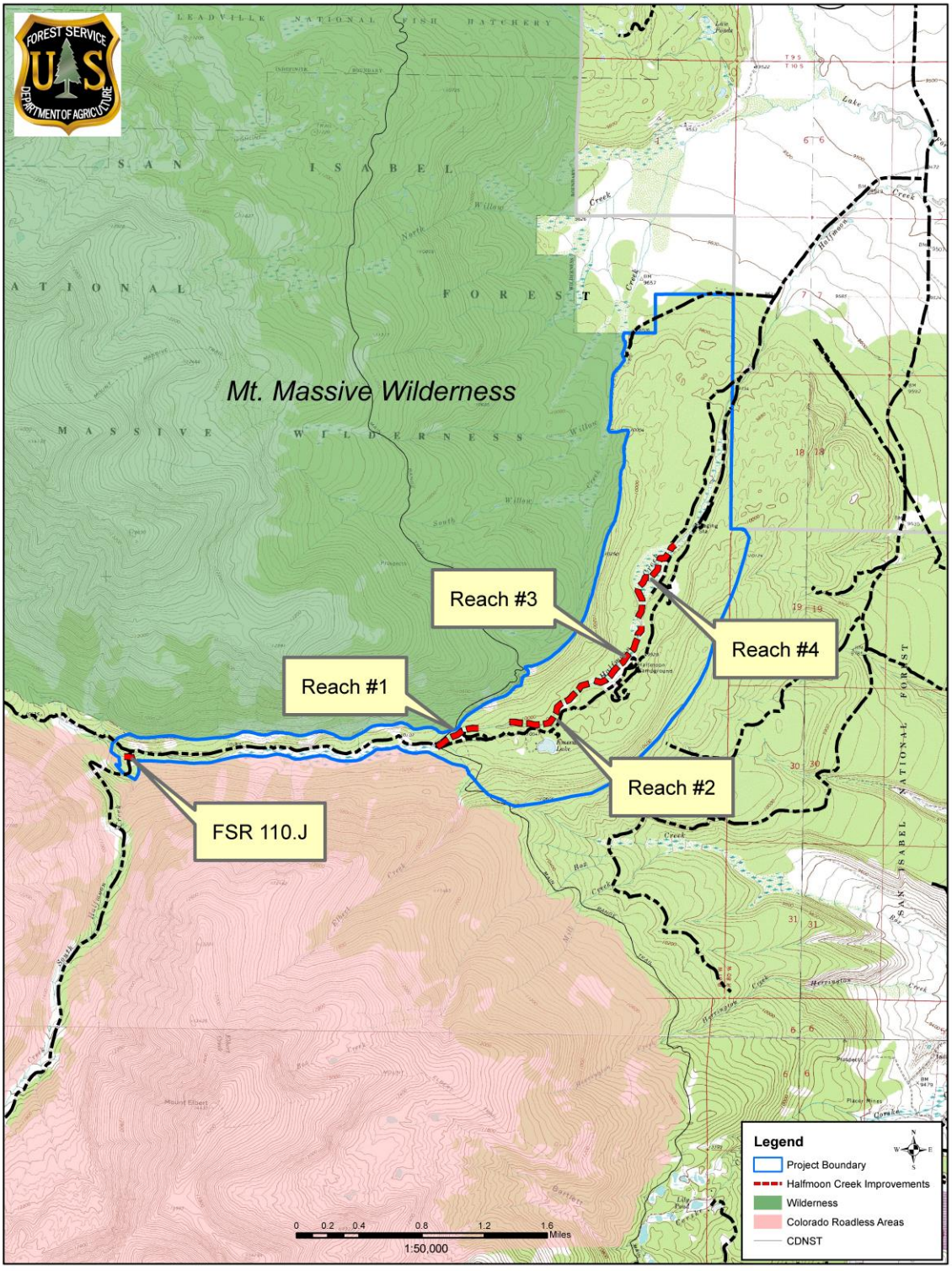
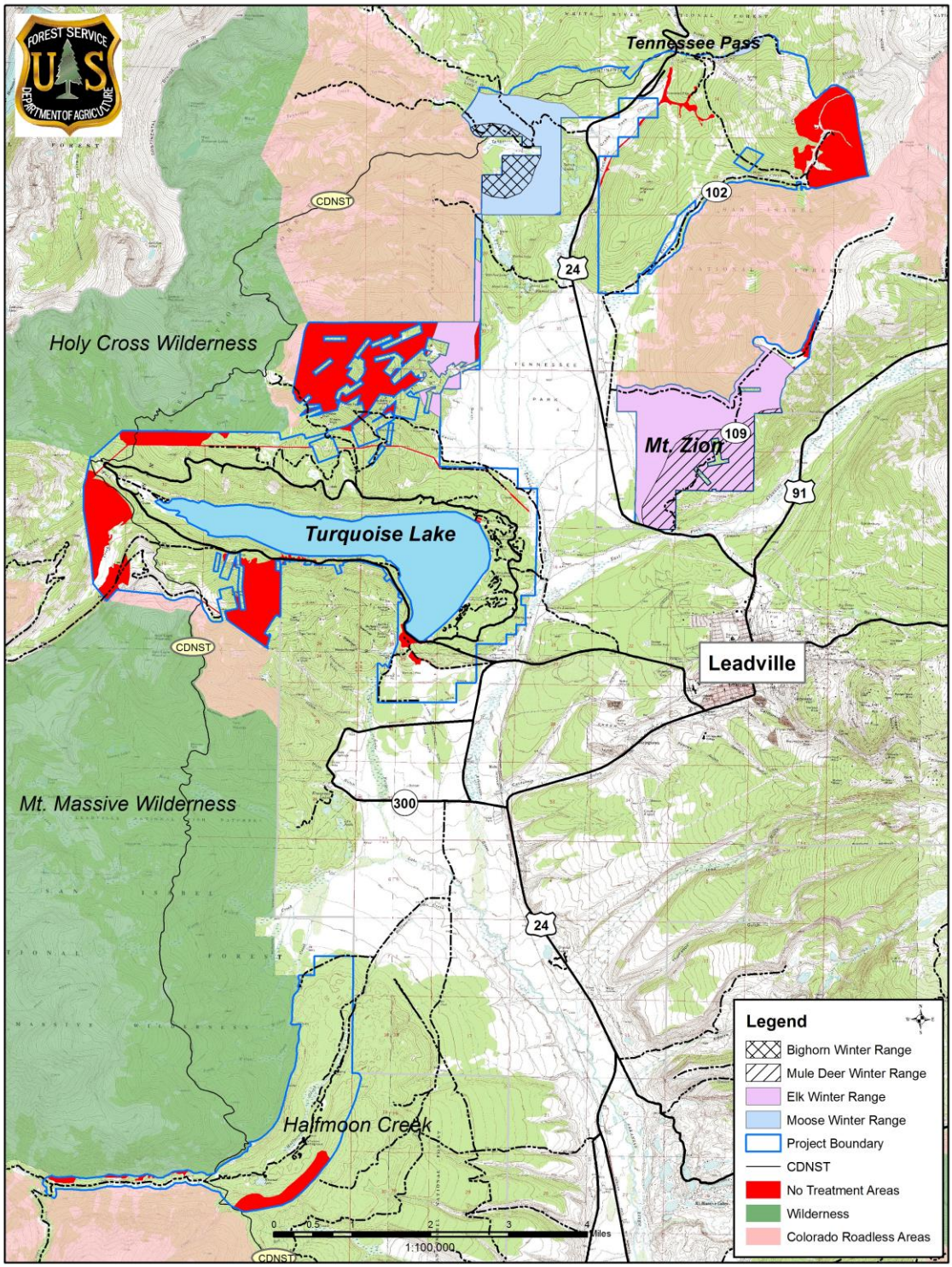


Figure 3. Winter Range for Big Game



** Winter range is subject to change. Consult Colorado Parks and Wildlife for current information.*

DESIGN CRITERIA

RECREATION

1. In order to facilitate coordination with permitted and approved activities such as outfitter and guides, recreation events, and mining operations, the Timber and Fire Management departments will notify the District Recreation Staff Officer in advance of treatment and hauling activities. This advance notification timeframe is typically April for the summer operating season and October for the winter operating season.
2. Where feasible, limit the multi-year duration of treatment activities within and immediately adjacent to developed sites of the Turquoise Lake Recreation Area (TLRA). These areas include west of Lake County Road 9 and 9C from the dam to Tabor Boat Ramp.
3. Treatment activities and hauling will be prohibited from noon Fridays through 6 a.m. Mondays and all Holidays from the Friday immediately preceding Memorial Day through Labor Day on the east side of TLRA and within ¼ mile of developed sites in the Halfmoon Creek drainage. Additional restrictions may be imposed for major recreation events such as the Leadville 100. Exceptions must be approved by the District Recreation Staff Officer.
4. Prohibit treatment activities and hauling within the Ski Cooper permitted boundary during their operating season (typical season is from December to April).
5. Prohibit hauling on FSR 101.C during Tennessee Pass Nordic Center's (TPNC) winter operating season (mid-November to mid-April) and from noon Fridays through 6 a.m. Mondays during the TPNC Cookhouse's summer operating season (end of June to the first of October). Exceptions must be approved by the District Recreation Staff Officer.
6. No treatments will occur in developed recreation sites while they are open to the public (typically Memorial Day to Labor Day). If closures are necessary, this will be coordinated with the District Recreation Staff Officer who will communicate with the concessionaire to reduce impacts.

GENERAL WILDLIFE

7. All new nesting and denning sites for threatened, endangered, or Forest Service sensitive species observed prior to or during implementation will be reported immediately to the District Wildlife Biologist and appropriate protection measures will be implemented.

SNAGS AND COARSE WOODY DEBRIS

<u>San Isabel National Forest Snag and Coarse Woody Debris Design Criteria (#8 – 10)</u>

Snags and recruitment snags are to provide for nesting, roosting, and foraging habitat for small mammals and birds (e.g., bats, woodpeckers, owls, and songbirds). These criteria do not apply to fuel breaks if they would compromise the integrity of the fuel break.

8. Maintain a ***minimum*** of 80 snags per 10 acre average of varying and large diameter size class. Guidelines for snags include:
    a. Retain all soft snags (class 3, 4, and 5) except for safety hazards (USDA Forest Service 1984, pp. III – 12) to the greatest extent reasonable and practical.

b. Retain all hard snags (when they are present) in the largest size class available (pre-treatment) to meet the above targets.

If above existing snag levels are not available, provide for green recruitment snag trees sufficient to bring snag/recruitment snag levels up to the above mentioned target levels in a well distributed manner of both clumps and individual trees, of largest available trees. Trees with defects (e.g. "wolfy" appearance, dead tops, forked tops, cankers, heart rot, diseases, broken tops, and large limbs) will be selected when possible. *Where practical*, create new snags by girdling, burn plan design, or other means, as necessary to achieve target numbers of snags. Clumping (versus even spacing) of snags and recruitment trees is preferable if desired snag species and larger diameter snags are available for the snag retention clump. Locate snag patches adjacent to green trees to provide additional cover for wildlife species.

9. Assure that adequate coarse woody debris (CWD) is retained for wildlife use and nutrient recycling following mechanical and prescribed fire treatments by retaining an average of at least 200 linear feet of the largest diameter wood available per acre where feasible. In areas where the prescription includes pile burning, some piles will be left in each treatment area for wildlife habitat and to supplement a stand deficient in CWD.

10. The snag and CWD requirements should be retained through all treatment phases (e.g., commercial operations, fuelwood, and prescribed fire) with the realization that some existing snags may become CWD, retention trees may become snags, and CWD may be unintentionally consumed during implementation (e.g. due to wind throw and fire).

White River National Forest Snag and Coarse Woody Debris Design Criteria (#11 – 12)

11. Develop prescriptions during project planning to identify the amount, size(s), and distribution of downed logs and snags to be left onsite, as well as live, green replacement trees for future snags. On forested sites, retain snags and downed logs (where materials are available) in accordance with the average minimums specified in Table A.1.

Table A.1 Minimum requirements for snag, snag recruitment, and woody debris retention

	Snags				Large Snags			Downed Logs	
Forest Type	Minimum diameter at DBH (inches)	Retention density (number per acres)	Recruitment density (number per acre)	Minimum snag height (feet)	Minimum diameter at DBH (inches)	Retention density (number per five acres)	Minimum snag height (feet)	*Minimum diameter (inches)	Retention density (linear feet per acre)
Spruce-fir	10	3	3	25	20	1	50	10	150
Lodgepole	8	3	3	25	20	1	50	8	100
Aspen	8	3	3	25	20	1	50	8	50
Douglas-fir	10	3	3	25	20	1	50	10	100
Ponderosa	10	3	3	25	20	1	50	10	50

Note: These amounts are to be calculated as per-acre averages for each 1,000 acres over a Silviculture landscape assessment area (see Silviculture Guideline #1). The retention density of large snags is a portion of the retention density of all snags. *The minimum diameter of downed logs is measured at the larger end of the log.

12. If no snags meet the minimum diameter and height requirements, use the largest snags available.

Silviculture – Guideline #1: The landscape should be the primary unit of analysis for Silviculture. A landscape is defined here to mean a distinct landform, such as a mesa or an "Order IV" watershed. There is a great variety of landscape types within the Rocky Mountain Region. Some landscapes are

"fine-grained" and are characterized by many small areas in various stages of plant succession. Other landscapes are "large-grained" – forested areas with large, unbroken expanses of trees with few openings. Some areas in the region have become a patchwork of forest and open places as a result of human use before national forest establishment, past Forest Service management practices, or natural disturbances (wind, fire, insect activity, and earth movement).

BIRDS

Unless consulted and agreed upon by the District Wildlife Biologist, the following criteria would be adhered to:

13. Because raptors nest in late winter and early spring and they can change nest locations annually, all proposed treatment areas will be surveyed for raptors and other nesting birds by a Wildlife Biologist to determine whether raptors (e.g. Northern goshawk, golden eagle, bald eagle) are present and actively nesting. If new nests are discovered, restrictions discussed below will be implemented.
14. An activity exclusion area consistent with the *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* around any active raptor nest (Colorado Division of Wildlife 2008) or threatened, endangered and sensitive bird species will be marked by the Wildlife Biologist and avoided (generally from March 1 to September 15). Buffer zone size and restriction dates will vary depending on species.
15. Active northern goshawk nests (any primary or alternate nest within a territory that has been utilized within the last 5 years) will be buffered by ½ mile radius for no disturbance from March 1 to September 15. A *minimum* 30 acre nest area will be delineated around the best habitat available, that includes each nest tree, and will be excluded from any harvesting activity.
16. To the extent practical and feasible, restrict prescribed burning from May 1 to August 15 in order to avoid disrupting migratory bird nesting and breeding.
17. Any trees that have evidence of being used as a nest tree (e.g., presence of constructed, natural or excavated nesting cavities, fecal whitewash, feathers, bolus pellets, skeletal bones, or fur of prey species present at or around the base of a tree) will not be cut.

BIG GAME

18. In forested areas, maintain a 200 foot deer and elk hiding cover buffer along 75 percent or more of each side of arterial and collector roads (USDA Forest Service 1984, pp. III – 153). Arterial and collector roads in the project area include FSR 100 Wurts Ditch Road, FSR 105 Hagerman Pass, and FSR 110 Halfmoon Road. Treatments will be allowed in the cover buffer as long as hiding cover is maintained.
19. To protect big game (mule deer, elk, bighorn sheep, and moose) critical winter range, winter range, and winter concentration areas seasonal restrictions for timber harvest and associated activities will be implemented on winter range within the project area from December 1 to April 15. Prescribed burning activities may be acceptable during this time period and will be coordinated with the District Wildlife Biologist.
20. If conflicts with other species protection measures prohibit effectively operating during the summer months in an area (e.g., restrictions for raptor nest sites), timber harvest operations

may take place on elk, deer, and moose (*not* bighorn sheep) winter range during the restriction period **IF *both*** of the following criteria are met:

a. A locked gate will be placed at the entrance to temporary roads used to access a treatment area to prohibit all motor vehicle access (except for authorized administrative use including Forest Service personnel and timber contractors).

b. Only 20 percent of the mapped winter range will be operated on during the restriction dates to allow big game to utilize the other 80 percent during this time. This will allow up to 375 acres of treatment per year in elk and deer winter range and up to 180 acres of treatment per year in moose winter range during the restriction periods.

21. Avoid disturbing elk calving and mule deer fawning concentration areas from May 15 to June 30 (Colorado Parks and Wildlife 2013).

CULTURAL RESOURCES

22. Prior to any implementation activity, the District Heritage Resource staff will be contacted to ensure avoidance of all eligible or potentially eligible properties for the National Register of Historic Places (NRHP). All eligible or potentially eligible properties including a minimum 30 – 50 foot buffer (depending on slope and fuel loading) will be avoided and protected. Heritage Resource personnel will determine the buffer and mark the area prior to implementation of ground disturbing activities.

23. Hand Cutting (non-mechanized) fuels reduction within eligible site boundaries may be permitted with prior consultation with a member of the District Heritage Resource staff.

24. If artifacts, features, or other indications of previously unrecorded heritage resources are identified in the course of ground-disturbing activities, all work in the vicinity of those materials would cease and the District Heritage Resource staff will be notified immediately. Project activities may resume after proper notification, mitigations, and archeological clearances are obtained.

25. A member of the District Heritage Resource staff working closely with the Timber and Fire Management departments will provide avoidance area maps during pre-implementation meetings to ensure understanding of the heritage resources landscape. These maps will be for internal use only and may not define in detail the full extent of the site boundaries but will include a comprehensive listing of general site locations.

SOIL, WATER, RIPARIAN, AND AQUATIC RESOURCES

26. In general, no treatments will be allowed in the water influence zone (WIZ) and these riparian areas, including kettles holes, will be buffered up to 100 feet on each side of the WIZ. A site visit by the Hydrologist, Fisheries or Wildlife Biologist may allow flexibility if it is determined a smaller buffer may be appropriate. Prescribed fire may occur in the WIZ, but direct ignition will not occur in these zones. Pile burning will not be allowed in the WIZ.

27. If boreal toad breeding sites are discovered during the life of this project, a 300 foot no treatment buffer will be put in place surrounding the breeding ponds. A map of known locations will be provided by the District Wildlife Biologist.

28. All project activities will be conducted in accordance with the guidance contained in the Watershed Conservation Practices Handbook guidelines (USDA Forest Service 2006, FSH 2509.25). The following Management Measures would be applicable to this project.

    - MM9_1g. Avoid ground skidding on sustained slopes steeper than 40 percent and on moderate to severely burned sustained slopes greater than 30 percent. Conduct logging to disperse runoff as practicable.
    - MM12_1a. Site-prepare, drain, decompact, re-vegetate, and close temporary and intermittent use roads and other disturbed sites within one year after use ends (all treatments). Provide stable drainage that disperses runoff into filter strips and maintains stable fills. Stockpile topsoil where practicable to be used in site restoration. Use certified local native plants to re-vegetate as practicable; avoid persistent or invasive exotic plants.
    - MM12_1b. Remove all temporary stream crossings (including all fill material in the active channel), restore the channel geometry, and re-vegetate the channel banks using certified local native plants as practicable; avoid persistent or invasive exotic plants.

29. Before heavy equipment and vehicles will be allowed to cross streams, the Forest Fisheries Biologist and/or Hydrologist will be consulted to determine where crossings will occur or be constructed, and to specify any stipulations necessary to minimize negative impacts on aquatic resources. These restricted periods will be determined by the Fisheries Biologist prior to project implementation and best management practices will be followed to minimize disturbance and sedimentation to spawning fish and incubating eggs.

30. The following soil, water, riparian, and aquatic resource design criteria are specific to the Halfmoon Creek Watershed Restoration and Habitat Improvement Project. These criteria are based on the Forest Plan Standards and Guidelines (USDA Forest Service 1984), *Region 2 Watershed Conservation Handbook* (USDA Forest Service 2006, FSH 2509.25), Section 402 and 404 of the Clean Water Act (33 USC 1342 and 1344), and recommendations from Colorado Parks and Wildlife.

    - Do not modify or dam the river in ways that would cause water levels to exceed bankfull elevations.
    - Restore any channel changes to hydraulic geometry standards for each stream type.
    - Re-vegetate to 80 percent ground cover within one year of disturbance using native vegetation.
    - Prevent hazardous substance spills by refueling and maintaining equipment outside of the water influence zone and by properly storing and handling materials.
    - Keep vehicles on established roads and pullouts. Clean all equipment prior to entry in the river to help prevent the spread of aquatic invasive species.
    - Whole trees and other wood utilized for aquatic habitat enhancement will be harvested using techniques developed by the Pike and San Isabel National Forests on the South Platte River to limit soil disturbance and promote vegetation regrowth (Trees for Trout Initiative 2005-2012).

FIRE/FUELS

31. Where possible, avoid additional mechanical treatments after prescribed fire (broadcast burning) treatments occur.
32. Pile size:
    - Hand piles max size: 10 feet x 10 feet x 8 feet (height)
    - Machine piles max size: 30 feet x 30 feet x 20 feet (height) with use of brush rake
    - Machine piles max size: 20 feet x 20 feet x 12 feet (height) with use of blade

BOTANY

33. Prior to implementation, surveys for Selkirk's violet and Weber's draba will be done during June and July near streams that may be impacted. Surveys for moonworts will be done from June through August along roadsides that may be disturbed during project implementation. If Weber's draba are located, all sites including a minimum 100 feet buffer will be avoided and protected. If Selkirk's violet or moonworts are found, the sites will be avoided and protected. The Forest Botanist will determine the buffer and mark the area prior to implementation of ground disturbing activities.

NOXIOUS WEEDS

34. To reduce risk of spreading noxious weeds, all heavy equipment and vehicles will be cleaned and inspected prior to entering the National Forest and all mud, dirt, and plant parts will be removed according to Region 2, Guide to Noxious Weed Prevention Practices (USDA Forest Service 2001).
35. Treatment areas will be monitored pre- and post-treatment (two years post-project completion) for noxious weeds. Weed locations identified will be scheduled for treatment by the Noxious Weed Coordinator.
36. Only certified weed-free Forest Service approved native grass/forb seed mixes will be used for re-vegetation efforts.
37. All noxious weed treatments will be in compliance with the PSICC Forest Plan, Invasive Species Environmental Assessment (1998), 2013 Management of Noxious Weeds Biological Assessment, and PSICC Invasive Species Strategic Plan (2008 – 2010). In addition, areas located on the Pike and San Isabel National Forests have an approved Pesticide Discharge Management Plan with the Environmental Protection Agency for treatment of noxious weeds in Tier 3 waters.

ROADS

38. Lake County Roads 4, 9, 9A, 9C and 11 are closed during the winter months (generally this is from mid-November to the first of May) to normal vehicle traffic. Exceptions to these closures, in order to access and haul from the project area, will be coordinated with the Lake County Board of County Commissioners annually prior to the winter season. Exceptions to the closures will be limited in scope and time.
39. Snow removal will be done in a manner to preserve and protect the roads to insure safe and efficient transportation and to prevent unacceptable erosion damage to roads, streams, and adjacent lands. Where possible, snow will not be removed to the road surface. A minimum 2 inch depth will be left to protect the roadway.

40. Equipment will not be operated when the ground is muddy or the soil moisture is high enough for equipment to leave ruts over 3 inches in depth.

VISUAL QUALITY MANAGEMENT

41. Paint only trees to be cut, paint side away from improvements, and use the minimum paint necessary to meet contract specifications within the first 100 feet of sensitive scenic areas. Sensitive scenic areas within the project area are: CDNST, Colorado Trail, Top of the Rockies Scenic Byway, and developed recreation sites including campgrounds and day use areas.
42. Cut stumps 6 – 8 inches from the ground within 100 feet of sensitive scenic areas. Sensitive scenic areas within the project area are: CDNST, Colorado Trail, Top of the Rockies Scenic Byway, and developed recreation sites including campgrounds and day use areas.
43. Flush cut stumps in developed recreation sites (exceptions include stumps located in rocky areas or areas that may pose a hazard to the sawyers).
44. No slash will be piled within 50 feet from trails and roadways to minimize visual impacts along these routes.

CDNST

45. Prior to implementation of clear cut units, the District Visual Quality Monitor will be consulted to assist in determining clear cut locations and ensuring Visual Quality Objectives (VQO) are met. The District Visual Quality Monitor will utilize the following information: a Visual Quality Objective of Partial Retention will be maintained within the foreground (0 – ½ mile) and middleground (½ - 4 miles). The VQO applies only to areas seen from the trail (this includes areas of the trail outside the project area). Based on the Partial Retention objective, treatment activities may repeat the form and line common to the characteristic landscape. Treatment activities may also introduce form and line characteristics not found in the landscape. However, changes in the qualities of size, amount, intensity, direction, and pattern shall remain visually subordinate. Duration of visual impacts: Reduction in form, line, color, and texture should be accomplished as soon as possible or at a minimum within the first year (USDA Forest Service 1974, pp. 32-33).
46. Existing openings as seen from the CDNST may be expanded up to 1/3 the size of the openings but will not exceed 40 acres (existing open + clear cut unit = 40 acres).
47. Feather thinning treatments that occur along the CDNST in dense forest stands. Feathered treatments will include: limited thinning in the first 50 feet from the trail and a gradual increase in thinning in the next 100 feet. Full thinning objectives will occur 150 feet and greater from the trail. Prior to implementation of thinning treatments, the District Visual Quality Monitor would be consulted to assist in determining locations and ensuring Visual Quality Objectives (VQO) are met. The District Visual Quality Monitor will utilize the following information: a Visual Quality Objective of Partial Retention would be maintained within the foreground (0 – ½ mile) and middleground (½ - 4 miles). The VQO applies only to areas seen from the trail (this includes areas of the trail outside the project area). Based on the Partial Retention objective, treatment activities may repeat the form and line common to the characteristic landscape. Treatment activities may also introduce form and line characteristics not found in the landscape. However, changes in the qualities of size, amount, intensity, direction, and pattern shall remain visually subordinate. Duration of visual impacts: Reduction in form, line, color, and texture should be

accomplished as soon as possible or at a minimum within the first year (USDA Forest Service 1974, pp. 32-33).

SAFETY

48. Forest Service will consult with Xcel Energy prior to any treatments occurring adjacent to high voltage power lines.

SKI COOPER SKI AREA ONLY (WHITE RIVER NATIONAL FOREST ONLY)

49. Yarding or the removal of large material (greater than 8 inches in diameter) will be required for spruce.
50. Spruce logs at the landings will be removed before spruce beetles emerge (emergence period is May - July).
51. Advanced regeneration (less than 5 inches in diameter) will be protected to the extent feasible.